

566.67
QHJ
EII X
NO. THE EAST AFRICA NATURAL HISTORY SOCIETY

JOURNAL

THE EAST AFRICA NATURAL HISTORY SOCIETY

VOL. XXIII NO. 3 (100)

JANUARY 1959

CONTENTS	Page
A Message from H.E. The Governor	125
Our Journal: An Appreciation for the 100th Number <i>By Myles E. W. North</i>	126
The Cowries of the East African Coasts <i>By Bernard Verdcourt</i>	130
A Technique for Developing Fossils from the Matrix in which they are Embedded <i>By S. C. Coryndon</i>	135
Bats in the Roof <i>By C. A. Spinage</i>	139
Masai Safari <i>By Roger Brown</i>	140
Ring-necked Doves Drinking at Wajir <i>By Myles E. W. North</i>	142
Nature Notes	143
A Rare Toad from Tanganyika, by Arthur Loveridge; Whale-headed and Saddle-bill Storks, by H. M. Gordon; A Spotted Eagle in Nairobi? by D. K. Bednall; Migrant Records—August/September 1958, by D. K. Bednall; Scorpion Shells, by Bernard Verdcourt; Lesser Kudu Goes to Hospital, by I. Parker; Snake's Climbing Abilities, by Col. R. Meinertzhagen and H. F. Stoneham; A Rare Tanganyika Snake, by Arthur Loveridge.	
Activities of the Society in Nairobi 1958 <i>By S. J. K. Collins</i>	149
Reviews	
Kew Bulletin Additional Series I. 1958. By J. B. Gillett. 'A Bird Watcher in Kenya'. By Vernon D. van Someren. Revised (1957) Edition of Roberts's 'Birds of South Africa'. By G. R. McLachlan and R. Liversidge. 'Voices of African Birds'. Recorded by Myles E. W. North.	150

HON. EDITOR—MARY ALDRIDGE

PRICE—Shs. 10/-



EAST AFRICA NATURAL HISTORY SOCIETY

Patrons :

HIS EXCELLENCY THE HON. SIR EVELYN BARING, G.C.M.G., K.C.V.O.
SIR PHILIP MITCHELL, G.C.M.G., M.C.
SIR HENRY MOORE, G.C.M.G.

President :

M. E. W. NORTH, ESQ., B.A. (CANTAB.), M.B.O.U.

Vice-President :

S. J. K. COLLINS, ESQ.

Executive Committee :

D. K. BEDNALL, ESQ., M.B.O.U.
W. R. BOWLES, ESQ.
R. H. CARCASSON, ESQ., F.R.E.S.
MRS. A. MCK. FLEMING
R. W. RAYNER, ESQ., B.A., A.I.C.T.A.
VERNON D. VAN SOMEREN, ESQ., M.B.E., B.SC., PH.D.

Hon. Editor :

MRS. MARY ALDRIDGE

Hon. Librarian :

MISS J. R. OSSENT, M.A.

Hon. Treasurer :

T. MAGNER, ESQ., J.P.

Secretary :

MISS D. NAPPER, B.SC.

All correspondence in connection with this Journal should be addressed to :

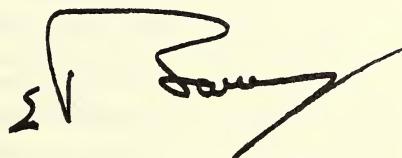
The Secretary, East Africa Natural History Society, P.O. Box 658,
Nairobi.

A MESSAGE FROM H.E. THE GOVERNOR

I am delighted to be able to welcome this the 100th number of the Journal of the East African Natural History Society.

For 48 years the Society, through its Journal, has recorded for the enjoyment and enlightenment of past, present and future generations the ideas, discoveries, research and explorations of nature lovers of the East African territories. The flora and fauna of these countries offer great scope both to the professional scientist and to the amateur, be he botanist or bird-watcher.

I myself find great pleasure and relaxation in observing the birds and plants of our Kenya countryside. I also much enjoy the articles in the Journal, and I hope that it will continue to flourish and to maintain its very high standard.

A handwritten signature in black ink, appearing to read "Sir Roy Welensky". The signature is fluid and cursive, with "Sir" and "Roy" on the left and "Welensky" on the right.

GOVERNOR

December, 1958.

OUR JOURNAL:

An Appreciation for the 100th Number

By MYLES E. W. NORTH

Our first issue appeared in 1910. Now, nearly half a century later, we have produced our 100th! This, surely, is quite an achievement, since funds (which usually depend upon our subscriptions) are limited, material for publication arrives irregularly, and the physical difficulties of getting a number published are often surprising. Nevertheless, issues have continued to be produced—not, indeed, as regularly as anybody could have wished—but, when produced, covering a remarkable variety of subjects—birds, mammals, reptiles, fish and shells; entomology, botany and general biology; geography, travel, anthropology and ethnology. And, for a Journal with such limited funds, the illustrations have usually been profuse! In fact, whenever one finds a longish interval between one issue and another, or a modest issue following a lavish one, the explanation may often be that we spent our last penny on the lavish issue and have been obliged, for the time being, to husband our resources! These lavish numbers are usually of considerable scientific value and maintain the prestige of the Journal in the scientific world, and personally I am all for them, provided that we do not bankrupt ourselves on their account or that the breathing space before the next issue is not too prolonged, since members like to get their journals regularly.

Our Journal has its own distinctive character, which was formed in the first number of 1910 and has been maintained ever since. Therefore, it is of interest to spend a little time upon this pioneer 1910 number, which is first-rate. To begin with, there is actually a coloured plate—of the Coqui Francolin—as frontispiece! Owing to the expense of reproduction, coloured plates have necessarily been few and far between in the history of the Journal—in fact, only nine have ever been published, the last in 1931. The Coqui plate illustrates an article on francolins by Sir Frederick Jackson (the eminent ornithologist who later wrote the *Birds of Kenya and Uganda*). Next, there follows an article on nature study by another of our great men, C. W. Hobley (author of *Bantu Beliefs and Magic*, etc.,) who was either sole or joint Editor of the Journal for the first fifteen numbers, from 1910-19. He was in addition a regular contributor to the Journal and displayed an astonishingly wide range of interests, as some of his articles show—Kariandusi deposits of the Rift Valley, Early Man in British East Africa, Evolution of the Arrow, Notes on Crocodiles, Baobabs and Ruins, African Sign Writing, a Bird Collection from Lamu, Migration of Butterflies, the Spitting Cobra, Records of Earthquake Shocks, the Rhino and his Curious Diet, and Some Unidentified Beasts. The paper on nature study is brilliant, and in many respects rings just as true today as it did in 1910. I would like to quote a few extracts :

"There may be many members who are anxious to do some work in this field, and who are at the same time rather doubtful as to what they can do and where to begin; one may compare such to a child placed in a room full of toys and standing wondering and confused, doubtful as to which it should select to amuse itself with. Most men, if they live long in a country like this, cannot help falling to some extent a victim to the spells of nature; the wealth of mammalian fauna and its attendant sport awakens a thrill in nearly all: some find birds a fascinating attraction, others succumb to the charms of the varied insect life, a few are attracted by the flora, and savage man again absorbs the attention of others. The scenery of the more rugged parts of the country appeals to the artistic eye, but it is feared that only a few try to read the riddle and go back to the geological causes of which the scenery is but the answer. Among such a bewildering range of subjects the choice must, of course, rest to a great extent with the would-be student's natural aptitude, or his liking for any particular branch, and also to some extent upon the locality in which he chances to live. . . . There is always a tendency among neophytes to assume that such-and-such a thing has been done by some one else, and that everything is known and has been worked out; as a friend said a little time since, 'Oh, what is the use of collecting birds? Mr. X. has done all that', whereas the greatest man of science knows that for eyes that see and brains that seek, the field for research is never so wide as it is at present, and that the eternal 'why' can never be fully answered. . . . One of the great obstacles to nature study in this country, both at present and for years to come, is the scattered state of students and the consequent difficulty of frequently meeting and discussing questions, but this has not prevented success being attained in other similar countries, and we must not be discouraged on that account. . . . A few words with regard to collecting: the prime factor of success in this branch is not to become too diffuse; if a man decides to collect birds then let him stick to birds, if he prefers insects let him stick to insects . . . he will then learn by experience where they are to be found . . . and will quickly acquire a working knowledge of the different genera."

Hobley recommends a nature calendar on the lines of Gilbert White and makes many other valuable suggestions with regard to the various branches of study, and concludes with a list of books. Never, in the whole history of the Journal, can there have been a more stimulating paper. There follows an article on plants by E. Battiscombe (later the author of *Trees and Shrubs of Kenya*) and one on butterflies by the Rev. K. St. A. Rogers (who later collaborated with Dr. V. G. L. van Someren in a great butterfly contribution, mentioned below); then, further articles and short notes, including a fine picture of the Hadada Ibis by Dr. R. van Someren. This completes the first number, which has never been surpassed. There were giants in those days!

Very early in our history—in 1914—there appears the first article of our leading editor, contributor and artist, Dr. V. G. L. van Someren. As editor, for a period of 15 years from 1922-36, he was either in sole or joint control, and covered 44 numbers,

or nearly half the production of the Journal to date! As a contributor he was primarily concerned with birds and butterflies. His outstanding ornithological work is, of course, the *Birds of Kenya and Uganda* which was issued serially between 1925 and 1935. This covers the game birds, pigeons, ducks, geese, bustards and waders, and runs to some 300 pages, with illustrations of nearly all the species. His outstanding entomological work (part of which was done in collaboration with Canon Rogers) is the *Butterflies of Kenya and Uganda*, issued serially between 1925 and 1939 and profusely illustrated. An artist, van Someren always illustrated his works either with drawings or photographs, and it is difficult, with so much material, to select any special example for mention. However, six out of our nine coloured plates are by him, and among these one of the most delightful is of *Hymenoptera* Sand-wasps (1919). By the way, several other members of the van Someren family have been intimately concerned with the Journal—his son, G. R. C., his brother, Dr. R., and his nephew, Dr. V. D.

In 1938 Dr. V. G. L. van Someren led an important expedition, sponsored by the Coryndon Museum, to the Chyulu Hills near Kibwezi in Kenya—a fascinating forested mountain range, almost uninhabited and little explored. The results—again profusely illustrated—were published in the Journal for 1939-43 by van Someren himself, with a useful map (done jointly with A. M. Champion and C. S. Hitchens), and by P. R. O. Bally, A. J. F. Gedye, W. D. Hincks, Sir A. K. Marshall and B. P. Uvarov.

From 1941-6 there was another outstanding editor, J. R. Hudson, who published no fewer than 21 numbers containing much excellent material during this period. He also performed a unique act in the history of the Journal, by publishing a comprehensive Index (under subject and author heads) of the contents of Numbers 1-80 (1910-43). This is an invaluable work, for which all students of the Journal are surely most grateful.

From the year 1947 onwards, as a result of post-war difficulties, the cost and delay of publication became increasingly acute and there were long gaps between Journals. To fill the vacuum, a modest but valuable little quarterly called *Nature in East Africa*, printed by the Falcon Press, of Nairobi, was started. This supplied the 'Short Notes' section of the Journal and ran for 11 numbers between 1947 and 1950 before being discontinued when conditions for printing the Journal itself had become easier. It performed a most useful service, and consideration has since been more than once given to the question whether it should be revived. Myself, I would prefer to continue to publish such matter in the Nature Notes section of the Journal, where they are less liable to get overlooked.

In an article of this length it is unfortunately impossible to mention even a selection of the leading papers contained in the Journal. I have, however, been able to mention some of those published during our early and middle years, so will now cite three samples of recent years, each entirely different but, in its individual field, of great interest. The first is of outstanding value—G. H. Swynnerton and R. W. Hayman's 'Checklist of the Land Mammals of Tanganyika and Zanzibar' (issue 90 of 1950). This is just the kind of list that every territory should have but will be lucky

to obtain. The second is of outstanding originality—D. G. MacInnes' 'Explanation of Scientific Nomenclature' (issue 95 of 1954). This contains an excellent glossary of the scientific names of our birds, giving the origin of the name (Latin, Greek or composite) and an explanation of its meaning. For instance, how many people know that the name of the Shrike *Rhodophoneus* means 'rosy murderer'? My third sample is, to me, outstandingly strange—some notes on the carnivorous habits of the duiker by M. Dalton (issue 94 of 1953 p. 73) and H. F. Stoneham (issue 97 of 1955 p. 205). Apparently duikers like meat and are even prepared to catch it, *pace* Stoneham, who says: "I have many times told the Africans to prove to me that duikers attack fowls [as alleged], and they have since done so. About dusk some years ago they called me to witness a stalk. The duiker approached stealthily on the feeding fowls and we waited and watched. Eventually it was close enough to seize one with a rush and I shot the duiker in the act with the fowl in its mouth, though not much hurt."

Many distinguished people have contributed substantially to the Journal. I would like to mention just a few of them here: for birds, Belcher, Benson, Brown, Guichard, F. J. Jackson, Leakey, Moreau, the van Somerens, Stoneham and Williams; for mammals and reptiles, Hayman, Hesse, Ionides, Loveridge, Blayney Percival and Swynnerton; for fish, Copley; for shells, Verdcourt; for entomology, Hale Carpenter, Gedye, T. H. E. Jackson, Pinhey, Poulton, Rogers, van Someren, Townsend and Uvarov; for botany, Bally, Battiscombe, Jex Blake, Dale, Moreau and Napier; for archaeology, Andrews, Hobley, Kirkman, Leakey, Mary Leakey and Moysey; for geography and travel, Juxon Barton, Brooks and Champion; for geology, Glenday, Gregory, Hobley, Pulfrey, Richard and Sykes; for anthropology and ethnology, Darroch, Dobbs, Hull, Orchardson, Michael Sampson, Thorp and Wynstone Waters.

With regard to our printers, the two leading firms are Messrs. Longmans Green of London, from 1910-22 (18 numbers), and Messrs. East African Standard Ltd. of Nairobi, from 1922-45 (no fewer than 66 numbers). Since 1945 there have been several changes, the work being performed at times by Messrs. Witherby of London, and by Messrs. Boyd, E.A. Printing Press, English Press and E.A. Standard of Nairobi. To all of these, and especially to the Standard, we are most grateful. Frankly, I think we are a bit of a nuisance to our printers, since we demand the highest standards of production for relatively few copies! However, I hope that it may be some consolation to them that, unlike many other productions, our Journals are kept, and read again and again. For instance, in how many periodicals is it easy to refer to the contributions of 1910, as I have been able to do in this paper?

One important function of our Journal which may not be well known to everybody is the fact that, with each issue, a considerable number of copies are dispatched to scientific institutions and publications all over the world, and in exchange we receive many journals of the greatest value for the enrichment of our Library.

In conclusion, I am sure that all the members of the Society will give the Journal, under its present Editor, Mrs. Mary Aldridge, and her sub-committee, Messrs. Bednall, Bowles and Magner, every good wish for the future.

THE COWRIES OF THE EAST AFRICAN COASTS

SUPPLEMENT II

By BERNARD VERDCOURT, B.SC., PH.D.

(PLATE I opposite page 134)

This supplement is based entirely on information supplied to me by various collectors. Since my paper* was published many persons have started collecting and have shown many of my original remarks concerning distribution and rarity to be completely erroneous. This is to be expected since my remarks were based entirely on the collections at my disposal; I have never collected at the coast myself. Additional comments are listed in the order of my original paper. Authorities for the names have been omitted save in cases where the species is new to the Kenya list. I have kept to the names used in my original paper and not followed recent changes.

I am pleased to say that there is a distinct move towards dispensing with the large number of genera used in recent works. Miss Alison Kay of the University of Hawaii has found the evidence of anatomy to be directly opposed to the recognition of these genera and has proposed the return to *Cypraea* for all the members of the subfamily *Cypraeinae* (see *Nature* 180: 1436-1437 (1957). I have kept the nomenclature used in my original pamphlet merely to avoid confusion but recommend that we sholud return to using *Cypraea* and, for general collector's use, specific names alone will, of course, suffice.

Pustularia globulus

Kenya: Mombasa (Penn); Kiunga (Sargent). Zanzibar (Knight).

Pustularia cicercula lienardi (Jouss.)

Shell 1.45-2.1 cm. long and 8.5-13 mm. wide, very beaked at both ends, white, tinged brown or pale orange with small, darker brown spots and also numerous, obscurely raised pustules. There is an indentation at the base of the posterior beak marked with brown. The columellar teeth are sometimes interrupted as in *globulus*. The teeth are tinged with brown and under a lens the grooves are slightly roughened. This race is known from the Seychelles, Mauritius, Chagos Archipelago, Aden and the Gulf of Suez. Kenya: Kiunga two, 19 x 11.5 mm. and 14.5 x 8.5 mm. (Penn); Diani Beach, very worn (R. Morgan).

Tanganyika: Tanga, Ras Kazone, 21 x 13 mm. (Childs) (not seen). Mrs. Barton has shown me two specimens collected in Zanzibar which are similar to *P. cicercula* but probably referable to a very large form of *P. globulus* which they resemble in shape. The two specimens are 18 x 11 and 18.5 x 11 mm. respectively; the dorsum is entirely smooth and uniformly orange, unspotted or very faintly spotted above, unspotted below. Further specimens are needed. There may be three *Pustularia* on our coasts.

Staphylea staphylaea

Preliminary work carried out by Miss A. Kay in Hawaii indicates that the animal of this is very similar, if not identical, with the animal of the next. I have long thought that one variable species was involved with every intermediate between two extreme forms existing.

Staphylaea limacina

An entirely pale brown variant of this has been discovered at Watamu (Kenya) by Mrs. Bentley. There are faint dorsal spots and orange-brown ends. The hair lines bordering the teeth are faint. Mr. Edwards states (*in litt.*) that there are two forms of this species with different animals. One has a peach-coloured foot with darker orange mantle and frill and the other a dull mauve foot with blackish mantle and a lilac frill. This needs more investigation—possibly sexual differences or stages of development are involved.

Staphylaea nucleus

Kenya: Gazi and Likoni (Sargent). Tanganyika: Tanga, Ras Kazone (Childs). Zanzibar (Knight, Barton).

Erosaria erosa

Mr. Penn has collected a form at Shanzu (Kenya) with a blotch on one side of the shell only. Intermediates with *E. nebrutes* have been collected in Zanzibar (Knight) and in Kenya at Kiunga (Sargent). Mr. Childs records *E. erosa* as large as 4.8×2.6 cm. from Tanga.

Erosaria marginalis

This rare species has recently been found in Kenya, thus confirming the original records—Jardini and Diani (Childs); Kiunga (Sargent). There are no local specimens of this species in the collections of the Coryndon Museum and no fresh specimens from anywhere. It is badly needed.

Erosaria poraria

Mr. Benton has collected a remarkable specimen of this species at Shanzu (on inner side of outer reef, 12th. Jan. 1955). It is a large and distinct form 2.2 cm. long. The back is very suffused with chestnut and purple and the tiny white spots are not always ocellated; the sides and underneath are purple. This specimen is so different from the small *poraria* from the East that I doubted its specific identity and thought it might be a new species. The late Guy Wilkins, however, informed me that in his opinion the specimen came within the range of variation of *E. poraria*.

Erosaria lamarckii

This is by no means as frequent as I implied. Mrs. Barton records it from Zanzibar and states that the animal is orange. Mr. Childs has found a form at Tanga without the dorsal ocellate spots and with less prominent ends. He also gives the maximum size of this species as 4.5×2.6 cm. Also from Lamu (Barradell) and Mombasa (Benton).

Erosaria turdus

Kenya: Lamu (Childs, Barradell).

Monetaria annulus

Mr. Penn has collected a distinctive variant with a very dark orange-brown dorsum at Fort Jesus, Mombasa.

Monetaria moneta

Hybrids between this and *M. annulus* have been reported to be frequent but I have not seen any specimens so far. Mr. Childs has found specimens as large as 3.1×1.7 cm. at Tanga.

Erronea onyx

This species is by no means as rare as I thought. It seems to prefer rather deep water near mangrove swamps. The animal is jet black.

Kenya: Mtongwe side of Port Reitz, Mombasa, five alive (Sargent), abundant (Penn); Tudor Creek (Metcalfe); Ngomeni and Patte Islands (Sargent). Tanganyika: Tanga, Ras Kazone, 5.3×3 cm. (Childs). Zanzibar, often abundant (Wiley, Barton, Knight).

Erronea caurica

Many Zanzibar specimens seem more elongate than usual and are perhaps referable to race *elongata* (Perry). Mr. Childs records specimens as large as 5.3×2.1 cm. from Tanga.

Olive-mottled Cowry*

* The name used by W. Wood 'Index Testaceologicus', sec. ed., 1828.

Erronea errones (Linn.) Fig. 1

Description: Shell ovoid-cylindrical, 2.2 cm. long and 1.15 cm. wide, back very pale bluish-green with numerous small olive-brown spots which run into each other and cause a rather uniform dense mottled effect. In the middle of the back of the particular shell mentioned below (from which this description is taken) is a more solid irregular brown mark made up of a few large spots and marks. The margins are quite unspotted, cream, faintly tinged with olive. The base and rather coarse teeth are similarly coloured. A feature of the specimen to hand is a compressed ridge at the bottom right-hand side of the margin. I have not been able to associate this with any of the rather diffuse subspecies mentioned by the Schilders.

A single specimen of this species was found alive by Mrs. A. H. B. Childs at Mtewara, Southern Province, Tanganyika; it was found under a flat piece of coral on a dead reef at low spring tide, two inches below datum level. The specimen is in Mr. Childs' own collection but has been seen by me. This species is not recorded for East Africa by the Schilders but since they were very careful about accepting records it is possible that there are earlier unconfirmed ones. It is not even recorded from Mauritius by the Schilders but is mentioned from that island in Viader's catalogue.

From above this species could be confused with *Cribalaria teres* but a glance at the base will distinguish it because *errones* has much coarser teeth and the sides are unspotted.

In the key given in my original paper, considering the base of the shell to be white—it certainly cannot be described as coloured—*errones* will run down to couplet 50 but clearly agrees with none of the species in the vicinity so there should be no difficulty in realising that one is dealing with a species not dealt with in the pamphlet. From the key, *Blasicrura stolida* (couplet 34) might sound similar but it is a larger species with a more solid median blotch and orange-brown margins, one of which is thickened.

Palmadusta clandestina

Kenya: frequent at Mombasa (Sargent, Benton). Tanganyika: Tanga, Ras Kazone, up to 2.3 cm. long (Childs). Zanzibar (Knight, 2.15 cm. long and Barton, 1.6 × 1.05 cm. and 1.7 × 1.0 cm.). One of Mrs. Barton's specimens had the zigzag pattern very much more distinct than usual and irregular due to mantle damage. The species is certainly very much commoner than I indicated originally.

Palmadusta asellus

Kenya: Bajun Islands, Kui Island (Sargent); Lamu (Sargent). Zanzibar.

Palmadusta ziczac

I have been informed of the following records :

Tanganyika: Tanga (Edwards). Zanzibar (Ostheimer). This species seems to be genuinely rare.

Palmadusta punctata

This recently recorded species appears to be not uncommon. Kenya: Likoni (Sargent); Ras Ngomeni (Sargent). Tanganyika: Dar es Salaam (Spry); Tanga, Ras Kazone, 1.35-1.9 cm. × 7.5-9 mm. (Childs). Zanzibar, (Knight, Ostheimer, Barton).

Palmadusta gracilis

Kenya: Bajun Islands (Sargent); Ngomeni, 2.1 cm. long (Sargent).

Palmadusta felina

This species is not at all common but single specimens turn up fairly often, e.g. Kenya: 10 miles N. of Kilifi, among live coral at low tide (A. Williams); Gedi (Poppleton); Tiwi (Croft). Tanganyika: Tanga, Ras Kazone, up to 2.2 × 1.4 cm. (Childs). Zanzibar (Knight).

Palmadusta fimbriata

This species is not at all rare as I stated originally. It also attains a larger size, up to 1.8 × 1.0 cm. Kenya: Mombasa, frequent (Benton, Sargent). Tanganyika: Tanga, Ras Kazone (Childs). Zanzibar (Barton, Knight). (Mr. J. Spry of Dar es Salaam, Tanganyika, collected a peculiar green form of this species. This green pigmentation is not a surface deposit but an integral part of the shell throughout. The animal must have been living in contact with some material

absorbed and then laid down by the mantle or some physiological action caused the mantle to produce a green pigment. The shape of the shell is exactly that of *fimbriata*. Also there are traces of dark colour at the ends beneath and the animal was red.)

Blasicrura owenii

An extremely worn specimen, 1.65×1.1 cm., from Diani Beach (R. Morgan) tends to confirm the presence of this species in East Africa. Fresh living specimens are still needed for complete confirmation.

Blasicrura stolida

Not many specimens of this have turned up and there is only one perfect specimen in the collections of the Coryndon Museum. Tanganyika: Tanga, Ras Kazone, 3.1×1.6 cm. (Childs). Zanzibar (Knight).

Cribaria teres

This is not rare. It is very variable in size. Kenya: Malindi (Tweedie); Kui Island (Sargent); Mombasa (Benton). Tanganyika: Tanga, Ras Kazone, said to attain 4×1.9 cm. (Childs). Zanzibar, 2.1 cm. long (Knight).

Cribaria chinensis

Tanganyika: Tanga, Ras Kazone, 4.5×2.4 cm. (Childs). Zanzibar, varies in length from 2.5-4.2 cm. and very variable in colour (Knight). Young shells have thick, creamy white margins with no spots but the characteristic dorsum and traces of orange between at least the columella teeth identify it.

Cribaria cribaria

Kenya: Ras Ngomeni and Gazi (Sargent); Shanzu (Penn); Malindi (Chance). Mr. Penn's specimens have small, pale, wine-coloured spots on the left-hand white margin. This upsets my key. Tanganyika: Tanga, Ras Kazone (Childs).

Luria isabella

Specimens as large as 3.7×1.8 cm. have been found at Tanga by Mr. Childs.

Callistocypraea testudinaria

Tanganyika: Dar es Salaam, 10.0 cm. long (Childs). Zanzibar, 10×4.7 cm. (Childs; various Zanzibar collectors).

Talparia argus

I have had about half a dozen verbal records of this species from Kenya (Malindi area) and Zanzibar. No specimens have been sent to the Museum.

Talparia talpa

This is perhaps not so frequent as I originally indicated. Specimens from Tanganyika, Tanga, Ras Kazone collected by Mr. Childs are said to be 8.3×3.9 cm., very much larger than any I have seen.

Mauritia mappa

I have a verbal record via Mr. J. Tucker that a Miss Bainbridge collected a specimen at Mombasa. I have still seen no local specimens.

Mauritia scurra

This species is widely distributed on our coasts and it is surprising that it has not been known for much longer. Kenya: Kiunga (Sargent); Likoni, common (Sargent); Mombasa, outer reef, between layers of dead coral at 2-3' below datum tide (Penn, Benton); Msambeni (Sargent); Kilifi (J. Williams). Tanganyika: Tanga, Ras Kazone, up to 4.5×2.4 cm. (Childs). Zanzibar. Mr. Sargent has collected at Ngomeni (Kenya) a variety which matches material from Queensland named var. *indica* Gmelin. It is distinguished from our usual form by its smaller dorsal spots and more cylindrical shape.

Mauritia arabica

Sargent records a specimen 8 cm. long from Mombasa and Childs one 8.1 cm. long from Tanga.

Mauritia histrio

In Zanzibar 'unhumped' forms very similar to *M. grayana* occur (Knight). A shell 5.7×4.0 cm. collected in E. Africa (locality uncertain) by Miss R. Morgan closely resembles *M. depressa* but is probably the form of *histrio* formerly thought distinct and known as *M. maculifera*. Mr. Childs has found specimens of *M. histrio* 7×4 cm. at Tanga.

Mauritia depressa

Kenya: Tiwi (Penn); without locality, 3.6×2.7 cm. (Childs).

Mauritia mauritiana

Sargent records one 9.5 cm. long from Mombasa and Childs one 9 cm. long from Tanga.

Cypraea pantherina

No specimens have turned up to confirm the E. African record.

Cypraea vitellus

A very dark variety with vinaceous tinge below has been collected at Fort Jesus, Mombasa, by Mr. Penn and at Gedi by Mr. Poppleton. Messrs. Rawlins and Sargent have collected some very large specimens at Tangawanda, Patte Island, Kenya, $6.8-7.5$ cm. long. Mr. Childs records specimens $5.8-6.3$ cm. long from Tanga. These upset my key.

As this paper went to press two further important records were brought to my notice by Mr. Wiley to whom I am most grateful.

Blasicrura owenii

Tanganyika, Dar es Salaam, Kendwa Island, seaward side, at low water mark with tide 1.9 below datum, under a stone in company with two *P. punctata*, E. T. Haywood.

This is a new record for Tanganyika. The species appears to be very rare.

Cypraeovula edentula Gray

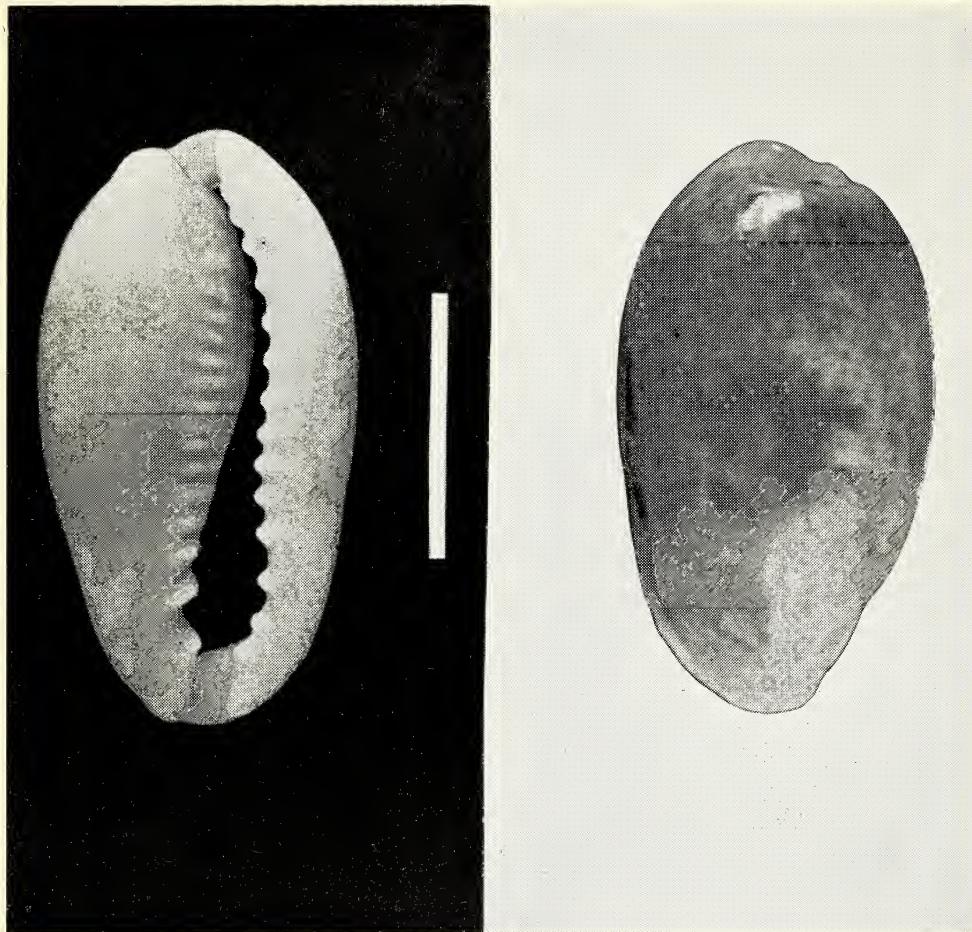
Tanganyika, Dar es Salaam, a 'dead' specimen, E. T. Haywood.

This is a very easily recognised species since it has no teeth on the lips or only obsolescent fine hair like striæ.

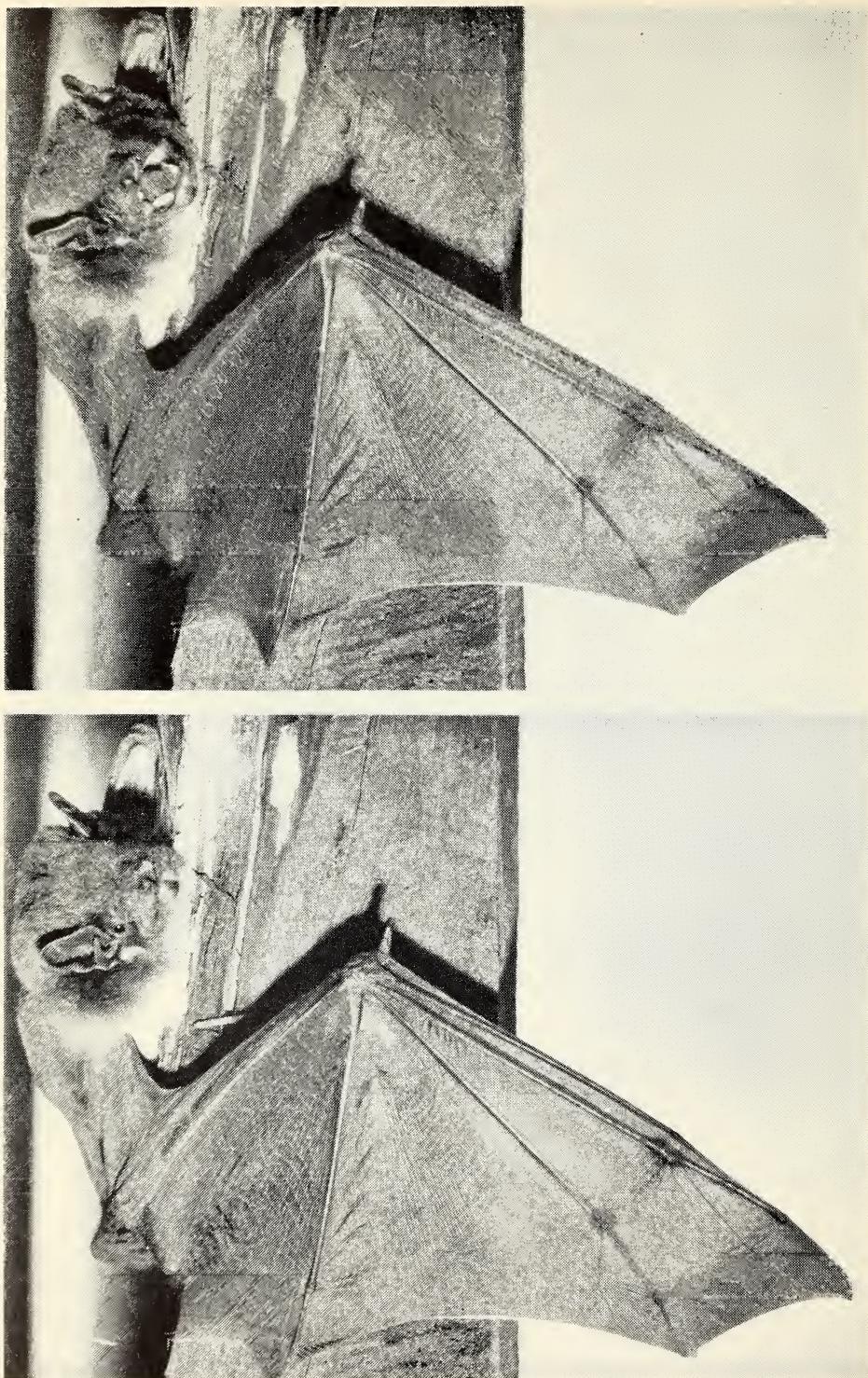
This is the first record for East Africa. Schilder records it only from Port Elizabeth to Fish River in South Africa. A record from Tanganyika is therefore extremely surprising and further material should be looked for to confirm that this shell did not reach Dar es Salaam fortuitously.

The number of interested collectors now available is sufficient for really useful biological information to be collated. I would suggest they start card indices with one card per species and collect the following kind of information: (a) Exact habitat preferences with dates of collections; (b) Detailed colour descriptions of the animals; (c) Dates of spawning and descriptions of egg capsules; (d) Rate of growth data—how long a species takes to reach maturity and how long they live. In a small group such as this the mere collection of a fairly complete range of species is not a long job and time should be available for ecological studies. I would be very pleased if the various collectors would contemplate this kind of work. They would certainly find no difficulty in publishing it. I suspect that quite a deal of this information is already available in various collectors' notes.

PLATE I



Upper and lower sides of *Erronea errones* (L.), Tanganyika, Mtwara, Mrs. A. H. B. Childs. (The white line represents 10 mm.)



1. The yellow-bellied House Bat. Its wide mouth gives it a comic appearance. Note the ears
2. The yellow-bellied House Bat with mouth open in attitude of emitting high-frequency sound waves. Note the ears
Photos: C. A. Spinage

A TECHNIQUE FOR DEVELOPING FOSSILS FROM THE MATRIX IN WHICH THEY ARE EMBEDDED

By S. C. CORYNDON

The technique described below is that which is used at the Coryndon Museum, Nairobi, with Miocene and Pleistocene mammalian fossils from Kenya and Tanganyika. There are many different ways of tackling this work, but we have found that after due consideration of expense, and the materials at our disposal, we can prepare fossils for study which are clean and tough by adopting this method.

By developing, we mean the preparation of fossils for study, which entails the removal of all possible matrix from around the fossil, consistent with its shape, strength, and the accessibility of the part to be cleaned. In many cases it is impossible or unwise to remove all matrix from around a fossil, as in the case of long bones which may have been fractured shortly after death, where the matrix may be acting as a

strong cement between the two pieces. (See Fig. 1.) If the matrix is removed, and often this type of infilling is of a very hard substance, the two broken edges of the bone may be so worn that the original points of contact no longer exist, and to effect a durable repair of the break would be a difficult problem. Again, a specimen such as a small rodent skull is often better left with a certain amount of matrix still attached in places where its removal might render slender processes or thin arches of bone liable to damage. (See Fig. 2.) When one is dealing with such small specimens any breakage of, say, a small process may end in the broken piece being mislaid.

The preparation of fossils for study starts in the field at the site of discovery. In East Africa fossils are often found on the surface a little removed from the deposit of origin, due to the action of rain or flood water washing the fossil out of the deposit and lodging it further down the gully or stream bed. In this case there may be only little

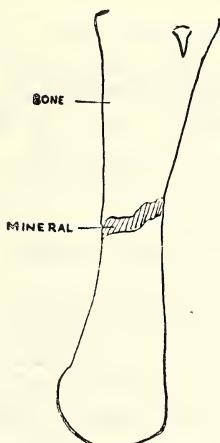


Fig. 1. Mammalian humerus showing fracture rejoined by mineral

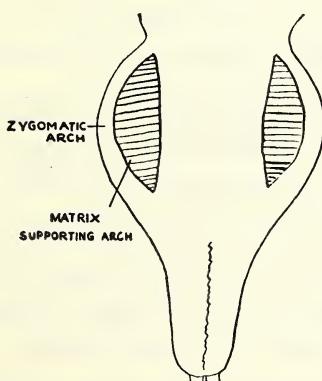


Fig. 2. Cranial view of rodent skull, showing matrix left undisturbed to support zygomatic arch

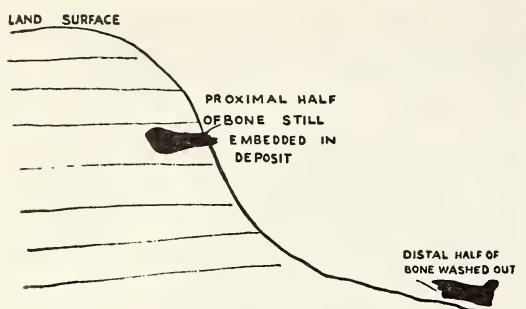


Fig. 3. Cross-section through deposit

necessary to dig carefully to see if any pieces are embedded farther in, and also to look below the deposit for fragments that may have been washed out of the original deposit. (See Fig. 3.)

If the specimen is large, as are many of the Pleistocene fossils from Tanganyika, the safest way of moving them is to encase the entire fossil and the surrounding matrix in a cage of Plaster of Paris, after which they can be taken to the institution where they will be developed without fear of damage. (See Fig. 4.) The upper or outer surface of the fossil is exposed as far as possible without damaging the specimen, and the exposed parts are then coated with shellac, not too strong, for extra strength. When the shellac is dry, the surface is wetted with a paint-brush (1" to 2") all over, and sheets of fine paper (Bronco is ideal) are laid on the exposed side and dampened down with more water so that the paper is in close contact with the fossil. This forms a protective layer between the Plaster of Paris and the fossil, facilitating the removal of the plaster at a later stage without damage to the specimen. Strips of material such as hessian are then cut and moistened and laid across the fossil, one or two strong sticks being laid on top of the hessian parallel to the long axis of the specimen. The Plaster of Paris is then prepared, and further strips of hessian soaked in the plaster and laid across the whole, including the sticks. When the plaster is completely dry, the whole fossil is very carefully dug out together with the surrounding matrix, placed with the plaster side down, and the process repeated on the untreated side, making sure that the edges are completely covered. The specimen may then be transported safely without fear of damage.

The tools used in developing out fossils in this museum vary according to the size of the specimen and the personal preferences of the worker, but chisel, mallet, and odd dental excavators sharpened to a point are most commonly used, together with a couple of paint-brushes varying in size from a 2-inch painter's brush to a small camel hair such as is found in a child's paint box. A child's old soft toothbrush is also very useful, especially when cleaning fossil teeth. It is important to maintain all tools in good condition, i.e. those with a sharp point will need resharpening at least once a day, small dental burrs used for fine work more frequently, and the paint-brushes cleaned each day.

Having assembled and prepared the tools a start can be made on the removal

matrix attached to the bone. However, very great care must then be taken, especially if the fossil has a fresh-looking break, to try to ascertain from which part of the deposit the fossil has been washed out, and if possible trace back the path of the fossil in case there may be other pieces of the same specimen which might otherwise have been overlooked. When a specimen is found lodged in a deposit it may be

of the matrix. Starting at the side of the fossil already exposed, a weak solution of shellac is applied, taking care not to put more than necessary on the matrix, as the distinction between bone and matrix may become blurred. The matrix is then very carefully scraped off bit by bit, starting at the edge of the bone. If the matrix is very thick, pieces can be removed by the gentle tap of a mallet on a fine chisel or dental tool, but this must be done with very great care and the angle of percussion must be at right-angles to the plane of the bone lest a chip of bone be removed as well. (See Fig. 5.) An electrical grinding stone can be used to advantage when removing a thick, hard layer of matrix, but again great care must be taken to ensure that too much matrix is not removed and it is advisable to leave a thin layer over the bone for removal by hand.

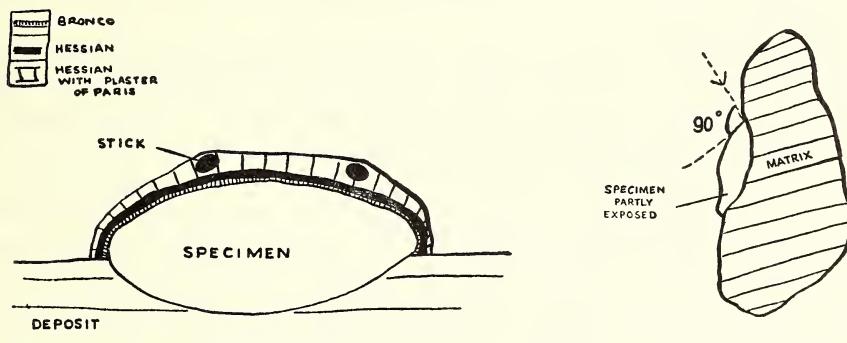


Fig. 4. Transverse section showing plastering method for removing large specimens

Fig. 5. Diagram to show angle at which percussion must be applied when removing matrix from a specimen

As each piece of bone becomes exposed it is coated with a very weak solution of shellac; this is particularly important where the bone is friable, as the repeated coating with weak shellac is absorbed by the bone and strengthens the whole specimen. If the shellac is too strong it merely forms a superficial layer which tends to obscure detail and does not strengthen the fossil.

When considering small specimens such as the skulls of rodents, frequent applications of plain water with a small paint-brush help one to distinguish between bone and matrix where each is similar in colour. A solution of 10% acetic acid may help to dissolve certain types of matrices, and can be applied very carefully with a small paint-brush on one area at a time, water then being used to remove any excess acid. It is advisable when using the acid for the first time to test an area of barren matrix so that the action of the acid on that particular type is wholly familiar. A word of warning—I remember trying this technique on some poor specimens of fossil grasshoppers (fortunately they were no good for study) and after half-an-hour's treatment with the acid all that remained was a nasty brown sludge.

Even the most careful of workers find that small pieces of bone or tooth may chip off during development, and in this case it is essential, especially with very small slivers of bone, to replace them immediately, using some adhesive such as 'Durofix'.

If the broken piece is put aside and left until the end of the operation it may be very difficult to orientate it into the correct position.

When dealing with small skulls, etc., a low-power microscope is necessary for the cleaning of teeth and delicate structures, and the best tools are a series of finely sharpened dental burrs, small enough to use with comfort under the lens. In such cases frequent cleaning of the loosened matrix with a fine brush is essential, as otherwise the tiny pieces of matrix may lodge in the depressions of the teeth just cleaned. When using a microscope the fossil must be absolutely dry otherwise the refraction of light through the liquid will tend to distort the image.

When the fossil has been cleaned of as much matrix as possible and all broken pieces put together, the whole specimen is given several coats of weak shellac, allowing each coat to sink in really well before applying the next. When the final coat is dry the specimen is ready for study.

Some fossils, especially the larger ones, may be incomplete although the general outline may be apparent. For the purpose of making the specimen more rigid, or for the clearness of display, the missing portions can be added using Plaster of Paris, coloured sufficiently like the fossil so that the original shape is clear, but not too like or the plaster might be mistaken for bone and so give the wrong impression.

Fossils when ready for study have to be housed very carefully in a box or drawer where they can be left without fear of damage. It is sometimes wise to make a base of Plaster of Paris for the specimen, for the purpose of exhibition, study, or so that it can rest in a drawer without damage to fragile points of contact. When required the specimen can be taken off the base easily. To make the plaster base, a cardboard or light tin box, about $\frac{1}{2}$ " to 3" deep according to the size and weight of the fossil, is used, and its length and breadth should be a little more than that of the specimen. The fossil is then coated on the underside (that side which will come into contact with the plaster) with first-grade olive oil. The box is then lined with fine paper and the Plaster of Paris is prepared as a solution and poured into the box. When the plaster is nearly set, about the consistency of whipped cream, the oiled side of the fossil is placed very carefully on to the plaster and pressed down very gently to ensure sufficient support for the fossil. Care must be taken that it does not go in too far or the plaster might undercut the fossil and make it difficult to remove. When the plaster is quite set, remove the fossil and clean off the oil. The plaster block can now be lifted out of the box, the paper peeled off, the edges scraped tidily and the registered number, or some other form of identification, written on the underside of the plaque.

The fossil is now ready for study, display or storage.

BATS IN THE ROOF

By C. A. SPINAGE, F.Z.S.

(PLATE II opposite page 135)

For some time I had been disturbed by noises in the roof of my cottage near Kikuyu. Thinking it might be a nest of owls I decided to investigate and discovered that it was due to a pair of bats that were in residence there. A large pile of droppings showed that they had been there for some considerable time.

As soon as I entered the loft and began to crawl towards them, no easy job balancing precariously on the rafters, they scurried as fast as they could for the deepest crannies that they were able to find. It was thus only after considerable difficulty that I was able to capture one of them. I did this by shining a torch at one that was hiding behind a beam and jiggling a stick near to it, whereupon it crawled out on the opposite side. After several unsuccessful attempts I finally managed to squirm round quickly enough to be able to dislodge it with my stick before it had time to crawl back in again.

My captive was removed to the Coryndon Museum where it was identified as a Yellow-bellied House Bat (*Scotophilus nigritus colias*), which is perhaps the most common of the East African bats.

I then tried to photograph it, but here I experienced considerable difficulty as instead of remaining quiescent, hanging upside-down as they are popularly supposed to do, it insisted upon flying around the room. As is now well known, bats find their direction by emitting high-frequency vocal notes, some species doing this by means of an open mouth and others through the nose with the mouth closed. I was able to observe in its flights around the room that it flew with its mouth agape.

While I have been sitting in my cottage at all hours of the day I have heard them active in the roof, there was usually a 'plop' as one landed on the ceiling-board, and then a slow, scraping noise as it crawled across it. On a few rare occasions they gave vent to a terrific high-pitched squeaking noise, which went on incessantly for several minutes. It was some time before I discovered the cause of this extremely penetrating noise. Occasionally at night-time, particularly around electric lights where there is a profusion of insects, one can hear odd little squeaks that seem to emanate from bats, and this may be due to them swallowing a large insect and trying to squeak at the same time!

During the two days that I had this one in captivity it never emitted a sound that was audible to me, although it was always opening its mouth as if it were making a noise. After two days had elapsed I decided that it was time to release it and took it outside at dusk. It crawled to the edge of the box that it was in and sat there opening its mouth. After a short time it flew up into the air and was immediately joined by a companion that came from the direction of my roof, and the two flew off into the night air together.

The interesting points that arise from this brief observation are :

1. They do not appear always to remain completely dormant during the hours of daylight.
2. The Yellow-bellied House Bat falls into the category of bats that emits its high-frequency notes through the open mouth and not through the nose.
3. I think that there is every probability that the one that joined my captive upon its release was its original companion, and the pairs thus appear to lead a fairly attached life. As it was kept captive in my room, it may have kept in contact by means of sounds inaudible to me.
4. They were intelligent in their efforts to avoid capture, and were not the sleepy, easily caught things that they are supposed to be in the daytime.

I am pleased to say that I have heard them in my roof since.

MASAI SAFARI

By ROGER BROWN

In the great area of African veldt to the south-west of Narok district lies a country visited only by the migrating Masai shepherds and inhabited by game and tsetse fly. Vague tracks exist made by tsetse investigation and game officials, but they soon peter out and the whole brooding land seems unfriendly to human beings and vaguely oppressive to the one European who lives there.

Leaving his camp one day, we moved west towards the Mara River along a faint game track and at one point came through a hilly belt of close-standing whistling thorn. Looking down across another sheet of waving grass we could see, far away, other similar patches of thorn showing the dry course of a stream, or rocky donga. As usual, the grass teemed with great herds of plains game: topi, kongoni, wildebeeste and tommy spaced out here and there with bat-eared foxes, jackals and warthog, all excited and inquisitive to see a vehicle and not really frightened at all, for there is no shooting there.

One pair of warthogs, father first and mother second, followed by a litter of eight little replicas, trotted stolidly across the track—tails and snouts up. Father, however, forgot that the babies could not trot so fast. Before he knew it, there he was ahead with mother and three little *totos*, while the others turned back by the Land-Rover and fled in confusion the way they had come, followed by our little

dachshund 'No-more' well in front of half-a-dozen Africans from our lorry which was following us. Vainly we shouted and yelled to stop the chase and then gave up as the procession raced across the plain. The dachshund caught one little baby about the size of No-more himself and rather than leave him to a solitary death in the bush he was put squealing into a cardboard box, where he stayed, bumping beside us, until we pitched camp by the river. Three times a day spoonfuls of condensed milk and water kept a little life in him, but after dark, while the lion coughed, grunted and roared around us, making the night with its other noises eerie and strange, the little piglet grew weaker and it was obvious that an early return to civilisation would be necessary if his life was to be saved.

The next morning, leaving the lorry behind to pack the camp, the big Land-Rover, with the canvas sides and the back rolled up, held two Africans and our children, David and Anne, the latter nursing in her arms a very feeble warthog piglet. At one point we stopped to see if it was dead and it was nearly jettisoned, but it squealed faintly and Anne clung closer to him, so he had a reprieve.

Some ten miles before we reached a used track we came to another thorny donga lined by small close-set thorn trees and large boulders through which one narrow track wound its way. There was no way round. To the side of this track lolled eighteen lions, lazy and half-playful, the sleepy tawny eyes gazing at the Land-Rover. Some were only half-grown, but there were no cubs among them. A superb lioness sitting on an ant-hill beside the track gazed at us with lazy disdain. One lay with its chin on a rock asleep with eight inches of pink tongue extended along the ground before it. We drove slowly closer and photographed them, and then found behind us a very large male stalking the Land-Rover through the long grass. We backed away and waited. Then, on the track ahead, an immense old male, black-maned and lowering at us, appeared. For a moment there was tension in the air, until the first male lay down by the ant-hill and several of his young came up and patted him with their paws, while above him his mate gazed at us unblinkingly.

The other male still blocked the track and we sat and waited until at last he moved ten or fifteen yards away and lay down under a small tree. Slowly we moved out of the rocks and scrub back on to the track towards the stream. As we did so the old male moved back, quick as lightning, to the path and stalked towards us. He had only a great black hole where his left eye should have been and the other was dark like a glowing coal. As I stopped, the others closed in on us on either side and behind . . . but I had no time to look, for the old male was already on the wing of the car, crouching tense, ready to spring into the back, where David and Anne and the two Africans sat as though petrified. Quickly I yelled for the little pig and stretching my arm out wide through the open window, hurled it out as the lion leapt, so that his attention was distracted. He bounded to the side. As he did so I slammed the car into gear and drove like Jehu over the rocky track into the dry watercourse. It appeared that the other lions were so close behind that the old male had not even been the first to reach the pig.

At night Anne said: "I prayed to God to look after the little pig." All I could say was "Amen".

RING-NECKED DOVES DRINKING AT WAJIR

By MYLES E. W. NORTH

(PLATES III AND IV)

During the dry weather enormous numbers of the Ring-necked Dove (*Streptopelia capicola*) come to drink at Wajir in the Northern Province, where there are numerous wells used by the local Somalis for watering their stock. These wells, which have been bored in the gypsum rock, are vertical, cylindrical, and about 3' wide and 15' deep; therefore birds cannot reach the water at the bottom. The Somalis, however, who draw out the water by means of skin bags attached to ropes, invariably spill a quantity in the process, and this is held in shallow cavities in the rock-surface, forming little pools, and it is here that the birds can drink. Even the tiniest puddle will serve, and a bird-bath near one of the officers' houses was immensely popular. Several gallons of water can be finished by the thirsty doves in a few moments!

I was stationed at Wajir from July 1939 to May 1940. Huge numbers of doves were watering here during the dry season from the time of my arrival till the short rains began in November, and again during the second dry season from December till the end of March when the long rains started. The birds were clearly making use of the Wajir supply from necessity, since no other surface water was then available for many miles around. The number watering was remarkable. The birds would arrive individually or in small straggling parties, not in flocks like sandgrouse. However, on arrival, they would assemble on the ground in large flocks while waiting to drink. One of these could cover an area 20 to 30 yards square, which means that it might consist of hundreds of birds, and there were many such flocks. Mr. John Llewellyn, who had been stationed at Wajir from 1914 to 1920 and returned on war service in 1939, told me that there was a large increase in watering doves since his time. I myself revisited Wajir in July 1955 and did not then see much change from 1939-40, but matters were now made more difficult for the doves because large numbers of Chestnut-bellied Sandgrouse (*Pterocles exustus*) were now coming to drink at the same pools, which is an innovation since my time.

Favourite hours for drinking were the early morning and 3-4 in the afternoon. Plate III (upper figure) shows a typical scene with a number of doves drinking at a small pool beside one of the wells, with camels in the background. Plate III (lower figure), taken from a car (in which one could approach the birds to within 15 feet or so), is a close-up of the drinking doves. Note that some of them are sitting in the water, wetting their breasts as well as drinking. This often occurred. If scared, the birds would take off simultaneously, with a great clapping of wings. The effect was decidedly spectacular, as Plate IV shows. This was taken at 1/1000 of a second, and illustrates just about every conceivable attitude for the escaping birds. Obviously, it can have been no easy matter for all the 75 doves shown in the picture to get under wing at the same time; yet they did so, on this and most other occasions, without



Above: Ring-necked Doves (*S. capicola*) drinking at a small pool resulting from spillage at one of the Wajir wells. Camels in the background

Below: Close-up of the drinking doves, some wetting their breasts

(Photos: Myles E. W. North)



The doves are scared, and all 75 of them escape simultaneously with a loud clapping of wings. The picture, exposed at 1/1000 of a second, illustrates every conceivable attitude for take-off. Odd to relate, collisions are infrequent

(Photo: Miles E. B. North)

collisions or casualties. However, these did occur now and then, just as one would have expected, and disabled birds could frequently be seen. Some, presumably stunned, were drowned in the pools.

For desert birds, opportunism in obtaining water is most advantageous. It is odd to think that all these doves can maintain themselves at Wajir during the dry weather solely on account of the spilling of water by the Somalis!

NATURE NOTES

A Rare Toad from Tanganyika

Among some East African reptiles and amphibians collected by William Colley, Esq., and presented to the Coryndon Museum, is a tiny toad he captured in the Amboni Caves, near Tanga, on May 11, 1958. In colour it is dark grey flecked with black and from snout to rump measures barely an inch (24 mm.), though it is a gravid female. She is referable to *Bufo lindneri*, a web-toed species devoid of tympanum, discovered at Dar es Salaam and only described in 1955 by Dr. Robert Mertens.

Doubtless non-naturalists assume all small toads to be the young of the very common Square-marked Toad (*Bufo r. regularis*), and in consequence have overlooked the many small species that have been described in recent years. Only during the rains do they appear to be in evidence.

Arthur Loveridge, St. Helena Island, South Atlantic

Whale-Headed and Saddle-Bill Storks

In the middle of July this year I went to the Murchison Falls National Park determined to see a Whale-headed Stork (*Balaeniceps rex*). After a few days I saw, in the company of Captain Poppleton, the Park Warden, one of these birds standing at the edge of the swamp. We managed to approach to within 43 yards and I filmed it using a 6-inch lens. Captain Poppleton said that seeing this bird at such short range was, to his knowledge, quite exceptional.

During the next few days I visited the same area, incidentally filming Saddle-bill Stork (*Ephippiorhynchus senegalensis*) with a 12-inch lens at a distance of about 100 feet, but did not succeed in approaching the Whale-headed Stork any nearer than before. Finally, I filmed the Whale-headed Stork (I think I had seen the same one each time) on the edge of the swamp at a distance of about fifty yards with a 12-inch lens.

As I was about to change the film I noticed the stork leave the edge of the swamp and walk towards the car. The game scout and I kept completely still and the bird walked up to the car and stopped about five yards from the nearside wing, and less

than that distance from a very small pool full of very muddy water. It stood still at this spot, looking alternately at the car and at the pool, for about twenty minutes. I was able to change the film just before the bird started to move away. It stopped several times on its way back to the swamp and was filmed very close up, taking in the head only and also eating, drinking and scratching and cleaning itself.

I cannot account for the extraordinary behaviour of this bird which I understand to be normally very shy. It may be that it had previously found some particular food in the small pool near the car (fifty yards from the swamp edge) and, as the car had been stationary for at least half-an-hour beforehand, decided to disregard it and walk to the pool.

H. M. Gordon, Nairobi

A Spotted Eagle in Nairobi?

On the 10th November 1958, with my wife, I was watching game at the Hyaena Dam just inside the boundary of the Nairobi National Park close to Wilson Airport. There had been a 'kill' and a lioness was wandering nearby. Numbers of birds of prey were scattered among the tops of the few trees around the dam. One of the birds, an eagle, flew towards us and passed within a few feet, flying very low. It settled on a small thorn tree and did not take flight even when we approached to within eight feet in the car.

The eagle had a dark chocolate-brown head and neck with slight mottling towards the mantle; the plumage had a peculiar bronzy-purple gloss. The wings were a dark bronze brown with conspicuous light tips to the feathers, especially the greater wing coverts. The webs of the primaries were somewhat paler, giving a lighter patch towards the end of the wing. The underparts graded from the dark brown of the chest to pale buff on the belly, under-tail coverts and legs. Noticeable through the binoculars were the round, not oval, nostrils. The cere was orange-yellow and the bill blackish-slate. The most remarkable feature was the back, rump and upper-tail coverts which were pure white. The tail appeared white with a broad dark brown band at the distal end with pale buff tips. In size the bird appeared to be about the same dimensions as a Tawny Eagle (*Aquila rapax*). It was so unusual that we took careful note of all the features we could.

I have discussed this bird with John Williams, to whom my thanks are due, and we think it may have been a Great Spotted Eagle (*Aquila clanga*) which has not hitherto been reported from the East African territories. The white back and rump, and round nostrils being diagnostic. (A Lesser Spotted Eagle (*Aquila pomarina*) was obtained some years ago in the Ithanga Hills.)

In his *Birds of Arabia*, Meinertzhagen says that the Great Spotted Eagle breeds in east central and south-eastern Europe through Turkestan—and in N.W. India. It winters in north-eastern Africa, India and S. China.

D. K. Bednall, Nairobi

Migrant Records—August/September 1958

Species	Locality	Date	Notes	
	Nairobi	10/8	Two seen	SJC
Swallow <i>Hirundo rustica</i>				
Temminck's Stint <i>Calidris temminckii</i>	Ol Joro Orok	31/8	Two seen	DKB
Green Sandpiper <i>Tringa ochrocephalus</i>	ditto	31/8	One	DKB
Greenshank <i>Tringa nebularia</i>	Lukenia	17/8	Two	EANHS
Bee-eater <i>Merops apiaster</i>	Lumbwa	23/9	Flocks of 30-50	DKB
Pintail <i>Anas acuta</i>	Ol Joro Orok	3/9	Pair	AC
White-eyed Pochard <i>Thalassornis leuconotus</i>	ditto	6/9	One	AC
Wood Sandpiper <i>Tringa glareola</i>	Mugie Springs	8/9	in breeding plumage	JB
Curlew <i>Numenius arquata</i>	Suguta Naibor	14/9	One	AC
Little Stint <i>Calidris minuta</i>	ditto	14/9	many (nbd)	AC
Black-tailed Godwit <i>Limosa limosa</i>	Nakuru Suguta Naibor	18/9	Two	DKB
ditto		14/9	15-20	AC
ditto		14/9	Many	AC
Wheatear <i>Oenanthe oenanthe</i>	ditto	14/9	One	AC
White Stork <i>Ciconia ciconia</i>	ditto	14/9		

The Greenshank were seen on one of the Society's rambles.

Two interesting records were the White-eyed Pochard at Ol Joro Orok and the Black-tailed Godwits at Lake Nakuru, the latter being the first record of this species for Nakuru.

The Society is grateful for the records sent in but it is hoped that a greater coverage of East Africa will be obtained in future. Notable gaps in the records are those covering maritime and shore birds. Observations from Uganda are also needed to form a more complete picture.

These records are being sent to the collator of African migrant records, Mr. R. Liversidge of Port Elizabeth.

D. K. Bednall, Nairobi

Scorpion Shells

Scorpion shells are well known to all visitors to the coast. The large size and conspicuous arm-like projections from the outer lip of the shell are noteworthy. The following notes will help to differentiate the various species likely to be found.

A KEY TO KENYA SCORPION SHELLS

1	Mouth of shell smooth within	2
	Mouth of shell ridged within	4
2	Shell large, up to 15 inches long, interior of mouth at the most pale flesh-coloured	3
	Shell small, up to 6 inches long, interior of mouth bright orange	
3	Shell very large, up to 15 inches long. Apex of main body of shell rather blunt	<i>Lambis crocata</i> (Link) (= aurantia Lmk.)
	Shell smaller, up to 8 inches long. Apex of main body of shell acute	<i>Lambis truncata</i> (Humphrey) (= bryonia Gmelin)
4	Six arms present, only one short bent one in middle, rest long; interior of mouth reddish-brown or orange with strong white ribs	<i>Lambis lambis</i> (L.)
	More than six arms present	<i>Lambis arthritica</i> (Röding) (= rugosa Sow.)
5	Seven arms present, three short bent ones in middle, interior of mouth violet, margined with pink, violet part with strong white ribs	<i>Lambis pseudoscorpio</i> (Lmk.)
	Ten arms present, all rather short, mouth with weak folds within	<i>Lambis violacea</i> (Swainson)

(Note. These species used to be placed in the genus *Pterocera* and that name will be found in many books of reference.)

L. crocata is common all along the coast, usually among masses of the plant *Cymadocea*.

L. truncata is now quite rare though widely distributed. It is much collected for curios and needs protection if it is to survive on our coasts.

L. lambis is the commonest member of the genus.

L. arthritica is less abundant in Kenya than it is in Tanganyika or Zanzibar and although examples have been seen from the entire coast it is rare in the extreme north.

L. violacea is rare and *L. pseudoscorpio* is recorded from Zanzibar by L. J. M. Butot.

I am indebted to Mr. S. Rawlins for the distribution data and to Dr. L. A. W. C. Venmans for his translation from the Dutch of parts of a paper on the group by L. J. M. Butot which recently appeared in the Indonesian journal, *Pengemar Alam* vol. 35, p. 71-83, plates 1-3.

Bernard Verdcourt, Nairobi

Lesser Kudu goes to Hospital

The note below has been sent to us by Mr. W. H. Hale, the Chief Game Warden. He says "it is vouched for as being correct, but I admit it reads like a fairy story". Here it is.

An extraordinary thing happened in Voi some time during the last week of July 1958. A male Lesser Kudu appeared in Voi with a snare tightly around its chest and dragging a large log of wood. It went straight to the hospital and lay down on the grass in front. There it awaited the doctor who, on seeing it, went up to it and undid the snare. The Kudu got up and walked off.

I. Parker, Game Warden, Kilifi

The short Nature Note which appeared in the last issue entitled 'Snake's Climbing Abilities' appeared over the name of Mr. C. J. P. Ionides when, in fact, it was submitted by Mr. W. Colley of Tanga. We offer our apologies to both of them. This note aroused considerable interest and prompted two of the snake notes which appear below.

Snake's Climbing Abilities

I was most interested in the letter in your issue of June last, recording a snake climbing a vertical wall. During the first World War I was at Korogwe in Tanganyika and record in my diary on the 28th August:

"Yesterday I saw a remarkable sight in my office. Hearing a slight scratching noise I looked up and saw a green whippy snake climbing the wall towards the nest of a pair of swallows. The snake was within two feet of the nest and slowly moving up, the body in two or three curves and tail directed down. How it clung to the wall is a mystery for it was quite perpendicular with a white-washed smooth surface. The snake had covered eight feet from the floor when I killed it."

I have related this incident to many people; the reaction has been either 'impossible' or roars of ribald laughter. I am therefore delighted to see confirmation in your Journal.

Col. R. Meinertzhangen, London

In the June number a Spotted Bush Snake (*Philothamnus semivariegata*) is described climbing up the corner of a vertical cement wall, and information of any other cases is asked for.

Some years ago, when I returned to my residence from Kitale, I was about to back my car into my garage when I saw a six-foot Jackson's Tree Snake therein. It tried to escape by climbing the vertical cement plastered wall of the garage and

easily climbed it up to about ten feet when it dropped to the floor. It immediately climbed again, but again dropped to the floor after attaining a height of eight to ten feet. This was repeated several times in succession. The cement was perfectly smooth yet the snake seemed to have no difficulty in climbing rapidly up. Jackson's Tree Snake (*Thrasops jacksoni*) used to be a common species here years ago before the woods and bush were cleared for crops and cultivation.

H. F. Stoneham,

Director, The Stoneham Museum and
Research Centre, Kitale

A Rare Tanganyika Snake

In a second collection of herpetological material recently presented to the Coryndon Museum by William Colley, Esq., is an example of the burrowing snake *Rhinocalamus dimidiatus* described by Günther in 1888 from three specimens taken at Mpwapwa. Colley's snake was taken at Dodoma, i.e. about 50 miles north-west of the type locality, and is, I believe, speaking from memory, the only example to be taken in 70 years except for the ♂ I captured at Mpwapwa on 23.xi.1929.

This reptile is readily recognisable by its striking coloration. Colley's ♀ (in alcohol) is uniform plumbeous to purplish brown above; laterally the labials and three lower scale-rows are yellowish cream, being indistinguishable from the entire under-surface except for a faint and ill-defined, dusky, longitudinal, median line beneath the tail. About the diameter of an ordinary pencil, this attenuated snake scarcely tapers from its wedge-shaped snout to the tip of its brief and bluntly-rounded tail. The total length of this ♀ is 515 (484 + 31) mm. Her scalation formula is normal, viz. Scales 17; ventrals 219; anal divided; subcaudals 19; preocular none; postocular minute; temporal 1. When taken on April 12, 1957, she was gravid, holding several elongated eggs.

Arthur Loveridge, St. Helena Island, South Atlantic

ACTIVITIES OF THE SOCIETY IN NAIROBI, 1958

By S. J. K. COLLINS

The Society's outdoor excursions have continued throughout the year in the form of monthly general rambles to local beauty spots and, for good measure, a few week-end camps have been held at the less accessible places. Outstanding among the all-day outings was the ramble arranged by Mr. W. R. Bowles to Donyo Sabuk, that wonderful rain-forest island situated in an otherwise desolate plain.

The camping week-ends were enjoyed by a restricted number of members, but perhaps the lack of basic equipment served more to limit the numbers than any other factor. Lake Magadi belied its usual reputation for dryness, and rain during the night caught most of the campers unprepared. The October camp held further adventures for the campers, who were benighted on Ol Donyo Orok, but luckily the main essentials, in the form of fuel and water, were readily available, and none of the party was any the worse for this little escapade.

A few enthusiasts have revived the mid-weekly bird-watching sessions and regular meetings are held every Thursday evening. Detailed studies started on the Nairobi Dam had, for safety reasons, to be temporarily suspended, although other haunts are still frequented.

It is unfortunate that, since the illness of our Vice-President, Mr. R. W. Rayner, the outdoor activities of the Society have become almost exclusively ornithological. It is hoped that enthusiasts in the other branches of natural history will come forward to help vary the scope of these outings.

By comparison with last year, 1958 has been a poor year for visiting celebrities. Earlier in the year, Lord William Percy stayed a short while in the Colony, and joined one of the Society's outings to the Ngong Hills, and then later Mr. and Mrs. W. M. Cottrell, a pair of very able American ornithologists, joined one of the mid-week sessions during their three-month tour of East Africa, during which, it is understood, they listed over 800 species of birds in the course of the trips through the three territories.

One lecture was arranged by the Society, the speaker being Mr. W. H. Hale, the Chief Game Warden, this being held in the Museum and attended by about 30 members and their friends. An informal slide and ciné show took place during November.

The Society's ornithological sub-committee has meantime been busy on other projects that will, in due course, require assistance from interested members. Preliminary investigations have been made on a breeding colony of the Black-headed Heron, in preparation for an intensified study to be conducted in the coming year. Plans are also afoot to compile a status list of the birds of the Nairobi area, with the ultimate intention of increasing the scope of this list to cover the Colony. A close interest is also being taken on plans for the large-scale ringing of migratory birds, while wild life conservation, and especially the formation of a sanctuary at Lake Nakuru, are being very closely watched.

REVIEWS

Kew Bulletin Additional Series I. 1958 Indigofera (Michrocharis) in Tropical Africa

By J. B. Gillett

Obtainable from Her Majesty's Stationery Office, London. Price Shs. 30/-.

In a special supplement to the Kew Bulletin Mr. Gillett has published an account of the genus *Indigofera* in Tropical Africa. In a book of over 150 pages he gives notes on nearly 300 species, their synonymy, distribution, and keys for their identification. To anyone with a serious interest in knowing the legumes this will prove an invaluable book, though in some places the keys may be rather obscure for the layman.

Diana Napper

A Bird Watcher in Kenya

By VERNON D. VAN SOMEREN

pp. xi + 270, 32 half-tone plates. Published by Oliver and Boyd. Price (in the United Kingdom) Shs. 30/-.

In his preface the author has set the atmosphere of his book by a few brief remarks about his attitude to wild birds. He is a 'lover of the living bird' *par excellence* and in all his intimate studies of African birds he has substituted the camera for the gun.

He modestly claims that the book is a personal tale and is not intended to be a scientific offering. It is certainly a delightful personal tale of a very able ornithologist who has that rare gift of observing all sorts of technical detail and yet describing it all in a simple and charming manner. But it is not only a personal story, it contains some most interesting scientific studies of certain birds and will be a valuable source of information for many years to come. The most absorbing of these are the stories of the Fiscal Shrike and Jackson's Whydah which give an unusually comprehensive picture of their lives and behaviour.

The author's easy conversational style makes this an easy book to follow and it is both entertaining and instructive to read.

There is a chapter on the author's experiences in Madagascar during the war, where he found the number of species far fewer than in East Africa.

As is to be expected from a craftsman of the author's calibre, the photographs are really first-class. At the end of the book there is a very detailed chapter on bird photography, which is a mine of information on this highly specialised subject.

We are indeed proud that this excellent addition to the bird literature of Africa was written by a member of the Committee of the Society, who was at one time Editor of our Journal.

D. K. Bednall

Revised (1957) Edition of Roberts's 'Birds of South Africa'

By G. R. McLachlan and R. Liversidge

Published by Trustees of South African Bird Book Fund, Johannesburg. Price in Kenya, about Shs. 50/-.

The first edition of this book, published in 1940 and many times reprinted, has ever since been indispensable to the ornithologist in East Africa on account of the admirable coloured illustrations done by N. C. K. Lighton under the personal supervision of the late Dr. Austin Roberts, and of the latter's clear, succinct text.

The revised (1957) edition of this book, here reviewed, retains the innumerable good features of the first edition, corrects the faults and introduces some admirable new features of its own.

Regarding plates, all the coloured illustrations of the first edition are retained, and six new uncoloured plates of birds in flight (by Mr. Perry and Mrs. Hooper in the style of the celebrated Peterson illustrations of the *Birds of Britain and Europe* have been added. Four of these show the larger birds of prey, and two some of the waders. This is precisely what we have long needed, and it is most gratifying to obtain it!

Turning to the plates themselves, those figuring the birds of prey are splendid—perhaps the outstanding feature of this edition. This does not mean, however, that they are without imperfections. For instance, the under wing-coverts of the White-backed Vulture (*P. africanus*) are shown grey, but should be white; the Tawny Eagle (*A. rapax*) is shown black below, but should be brown, and the under-wings of the Long-crested Eagle (*L. occipitalis*) are shown nearly white, but should be black with a white patch near each end. In the first plate of the wader illustrations all the species bar one are much too pale (due, presumably, to a fault in the printing of my copy). However, minor criticisms of this nature need do little to detract from the value of this fine African pioneering effort.

The text of this new edition, which has been rewritten throughout, is now grouped under four heads—identification, distribution, habits and breeding. The identification head now remedies one of the defects of the first edition already mentioned, and with regard to the other two defects, local races are now relegated to small print and the accepted generic names replace Roberts's. Distribution is not merely described, but, in accordance with the best modern practice, illustrated by a small but most informative marginal map. The book is strongly bound in buff cloth and is no greater in size than the first edition. The general standard of production is, once again, excellent, and all concerned are to be congratulated upon a most worthy sequel to the original edition of that great ornithologist, Dr. Roberts.

In conclusion, ornithologists resident in East Africa who already possess the first edition of Roberts may wonder whether it is worth buying this revised edition too. In my opinion, emphatically so: apart from anything else, the plates of the flying birds and the notes on identification alone make it far more than a new edition, it is virtually a new book.

Myles E. W. North

Voices of African Birds

Recorded by MYLES E. W. NORTH

Published by Cornell University Records, Ithaca, New York. Retailed in East Africa by Rowland Ward Ltd., Sadler Street, Nairobi. Price Shs. 55/-.

For years bird enthusiasts in East Africa struggled to identify by eye the numbers of interesting birds around them without the aid of any popular handbook. This state of affairs has now fortunately improved and we have reasonably adequate tools for the job of identification by eye. The month of December has marked the opening of an entirely new field of identification of our local birds—by ear. During that month this really outstanding long-playing record (33½ r.p.m.) of the songs of forty-two of the commoner birds of East Africa was published.

Myles North's tremendous experience and extensive knowledge of this field of ornithology is widely known far beyond the shores of Africa and the quality of these recordings is positive evidence of his leadership in this field.

The recording of each bird is prefaced by a short description; these are well done and are of just the right length to provide adequate information for the beginner, yet are not too long to irritate the expert keen to get to the next bird song.

The recordings cover a delightfully varied range of calls and songs including the deep booming of the Ground Hornbill, the odd-sounding whistles and sobs of other species of hornbill, the enchanting pealing of the Red and Yellow Barbet, and the familiar little tinny song of the Striped Breasted Swallow.

Particularly notable is the song battle between a Spotted Morning Warbler and a Nightingale: a most interesting contest between comparable songsters of Africa and Europe. There is also the call of the Black-throated Honey-guide by which the bird sometimes leads human beings and, it is said, certain animals such as the honey-badger, to trees where honey is to be found.

There is something for everybody in this record. Residents of Nairobi, for example, will be familiar with the mewing cry of the ubiquitous Kite and the noises made by Pied Crows, whilst the song of the Ring-necked Dove takes one immediately to those hotter and drier areas of which that song is so characteristic. The Nairobi and perhaps other rubbish dumps are recalled by the clatterings, mooings and other strange sounds of the Marabou.

There is so much in this record that to do it justice much more space would be necessary than that allotted to a review. All those many persons interested in the bird-life of Africa should place their order with the retailers now—this record is sure to be in great demand. It would form a magnificent gift to any friend, particularly those who are no longer in East Africa; it would bring to them nostalgic memories of many places in this spacious land of ours.

D. K. Bednall

EAST AFRICA NATURAL HISTORY SOCIETY

Notice to Contributors

Contributions. The Committee is pleased to consider contributions on natural history for publication in the Journal on the understanding that these are not also being offered, wholly or partially, to any other journal. They should be addressed to the Secretary, P.O. Box 658, Nairobi.

Typescript. Articles should be typed on one side of the paper, in double spacing and with wide margins.

Illustrations. These should be in a form suitable for reproduction. The Editor cannot be expected to re-draw. Line drawings should be in Indian ink on Bristol board or thick white paper. Reproduction will be better if they are drawn larger than it is intended that they should appear. An indication of the degree of reduction is advisable. Photographs should be printed on glossy paper and a better reproduction is achieved from prints slightly darker in tone than normal.

Nomenclature. Where a recent standard work for the area is available (e.g. Praed and Grant for birds) the names given there (both English and scientific) should be used. Initial capitals should be used for specific English names, e.g. Pied Wagtail and small initial letters for group names, e.g. wagtails. Scientific names must be underlined. Where an English name is used, it is normally advisable, on first mention, to add the scientific name to avoid misunderstanding.

References. These are usually abbreviated in the text and listed more fully in alphabetical order of authors at the end of the article. For example, in the text a book reference might be (Jackson 1938: I p.24); a periodical reference might be (Pinhey 1956: p. 20). At the end of the contribution: Jackson, F. J., 1938. *Birds of Kenya and Uganda*. Pinhey, E. C. G., 1956. *The Emperor Moths of Eastern Africa*. Journ. E.A. Nat. Hist. Soc. XXIII No. 1 (98). With short articles it may not be worth making a list of references at the end, but the whole reference in the most abbreviated comprehensible form should then be inserted in the text.

Reprints. Provided that they order at the time of submitting their articles, authors may have up to 25 reprints free (other than Nature Notes). Additional copies can be supplied on payment.



3 9088 01313 7104

Printed by
East African Standard Ltd.
Nairobi